CLAIMS

1. In a network that employs a hierarchical digital transmission standard, a method of operating a node to handle link failure, said method comprising:

detecting failure of a data communication link at a second hierarchical layer, wherein said link is employed by a plurality of paths defined at a first hierarchical layer above said second hierarchical layer;

signaling local repair of said failure using overhead information of said second hierarchical layer; and

switching only protected ones of said plurality of paths to alternate routes through said network to avoid said failure.

2. The method of claim 1 wherein said network comprises a mesh network.

3. The method of claim 2 wherein signaling comprises:

signaling without flooding throughout said mesh network.

4. The method of claim 2 wherein said at least one of said plurality of paths is protected and at least one of said plurality of paths is unprotected.

5. The method of claim 2 wherein said first hierarchical layer comprises STS-1 communications and said second hierarchical layer comprises OC-n communications.

6. The method of claim 2 wherein said first hierarchical layer comprises VT1.5 communications and said second hierarchical layer comprises STS-1 communications.

7. The method of claim 2 further comprising:

pre-configuring which ones of said plurality of paths are protected.

8. The method of claim 2 further comprising:

pre-configuring protection routes for said plurality of protected paths.

9. In a network that employs a hierarchical digital transmission standard, apparatus for operating a node to handle link failure, said apparatus comprising:

means for detecting failure of a data communication link at a second hierarchical layer, wherein said link is employed by a plurality of paths defined at a first hierarchical layer above said second hierarchical layer;

means for signaling local repair of said failure using overhead information of said second hierarchical layer; and

means for switching only protected ones of said plurality of paths to alternate routes through said network to avoid said failure.

10. The apparatus of claim 9 wherein said network comprises a mesh network.

11. The apparatus of claim 9 wherein said means for signaling comprises:

means for signaling without flooding throughout said mesh network.

12. The apparatus of claim 10 wherein said at least one of said plurality of paths is protected and at least one of said plurality of paths is unprotected.

13. The apparatus of claim 10 wherein said first hierarchical layer comprises STS-1 communications and said second hierarchical layer comprises OC-n communications.

14. The apparatus of claim 10 wherein said first hierarchical layer comprises VT1.5 communications and said second hierarchical layer comprises STS-1 communications.

15. The apparatus of claim 10 further comprising:

means for pre-configuring which ones of said plurality of paths are protected.

16. The apparatus of claim 10 further comprising:

means for pre-configuring protection routes for said plurality of protected paths.

17. In a network that employs a hierarchical digital transmission standard, apparatus for operating a node to handle link failure, said apparatus comprising:

a processor;

a memory storing instructions for execution by said processor, said instructions comprising:

code that causes detection of failure of a data communication link defined at a second hierarchical layer, wherein said link is employed by a plurality of paths defined at a first hierarchical layer above said second hierarchical layer;

code that causes signaling of local repair of said failure using overhead information of said second hierarchical layer; and

code that causes switching of only protected ones of said plurality of paths to alternate routes through said network to avoid said failure.

18. The apparatus of claim 17 wherein said network comprises a mesh network.

19. The apparatus of claim 18 wherein said code that causes signaling comprises:

code that causes signaling without flooding throughout said mesh network.

20. The apparatus of claim 18 wherein said at least one of said plurality of paths is protected and at least one of said plurality of paths is unprotected.

21. The apparatus of claim 18 wherein said first hierarchical layer comprises STS-1 communications and said second hierarchical layer comprises OC-n communications.

22. The apparatus of claim 18 wherein said first hierarchical layer comprises VT1.5 communications and said second hierarchical layer comprises STS-1 communications.

23. The apparatus of claim 18 wherein said instructions further comprise:

code that causes preconfiguration of which ones of said plurality of paths are protected.

24. The apparatus of claim 18 wherein said instructions further comprise:

code that causes preconfiguration of protection routes for said plurality of protected paths.

25. In a network that employs a hierarchical digital transmission standard, a computer program product for operating a node to handle link failure, said computer program product comprising:

code that causes detection of failure of a data communication link defined at a second hierarchical layer, wherein said link is employed by a plurality of paths defined at a first hierarchical layer above said second hierarchical layer;

code that causes signaling of local repair of said failure using overhead information of said second hierarchical layer below said first hierarchical layer;

code that causes switching of only protected ones of said plurality of paths to alternate routes through said network to avoid said failure; and

a computer-readable storage medium that stores the codes.